

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number  
**WO 2005/064720 A3**

(51) International Patent Classification<sup>7</sup>: **H01M 8/04**

(21) International Application Number:  
PCT/US2004/042854

(22) International Filing Date:  
16 December 2004 (16.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
10/740,693 19 December 2003 (19.12.2003) US

(71) Applicant (for all designated States except US): **BALLARD POWER SYSTEMS INC.** [CA/CA]; 4343 North Fraser Way, Burnaby, British Columbia V5J 5J9 (CA).

(71) Applicant (for ZW only): **BALLARD POWER SYSTEMS CORPORATION** [US/US]; 15001 Commerce Drive North, Dearborn, MI 48120 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KNAGGS, Leslie,**

Brenon [CA/CA]; #41-2665 Capehorn Avenue, Coquitlam, British Columbia V3K 6B8 (CA). **ORDUBADI, Fariborz, T.** [CA/CA]; 180 West St. James Road, North Vancouver, British Columbia V7N 2P2 (CA). **VINK, Edwin, J.** [CA/CA]; 8143 232nd Street, Langley, British Columbia V1M 3R8 (CA).

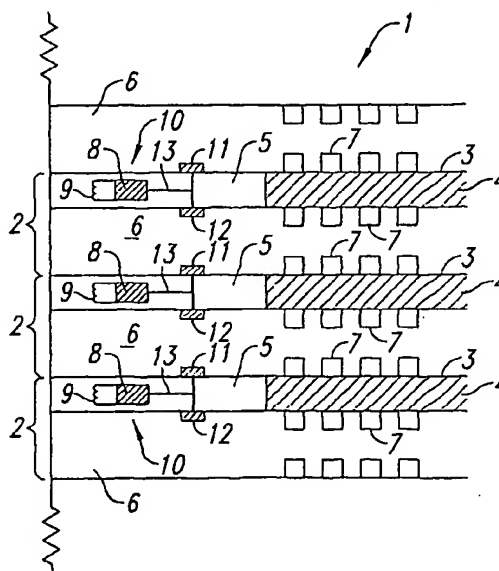
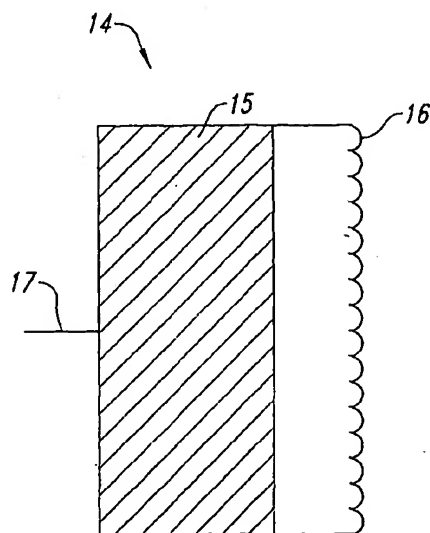
(74) Agents: **WAGNER, Emily, W. et al.**; Seed Intellectual Property Law Group PLLC, Suite 6300, 701 Fifth Avenue, Seattle, WA 98104-7092 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AF, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

(Continued on next page)

(54) Title: **MONITORING FUEL CELLS USING RFID DEVICES**



(57) Abstract: Radio frequency identification (RFID) devices may be used to monitor various operating parameters in fuel cells. For example, RFID devices may be used to monitor the voltage of individual cells in a fuel cell stack and thus to check for voltage reversal conditions during stack operation.

WO 2005/064720 A3



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:

22 December 2005

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*